

# California's Nuclear Power Plants

California Energy Commission

Joanna Reinhardt

August 16, 2005

# Humboldt Bay Power Plant

1963 - 1976

65 MW (135 MW – gas fired units)

First Coastal Nuclear Power Plant in California

Nuclear portion shut down after re-fueling due to economics of seismic retrofit

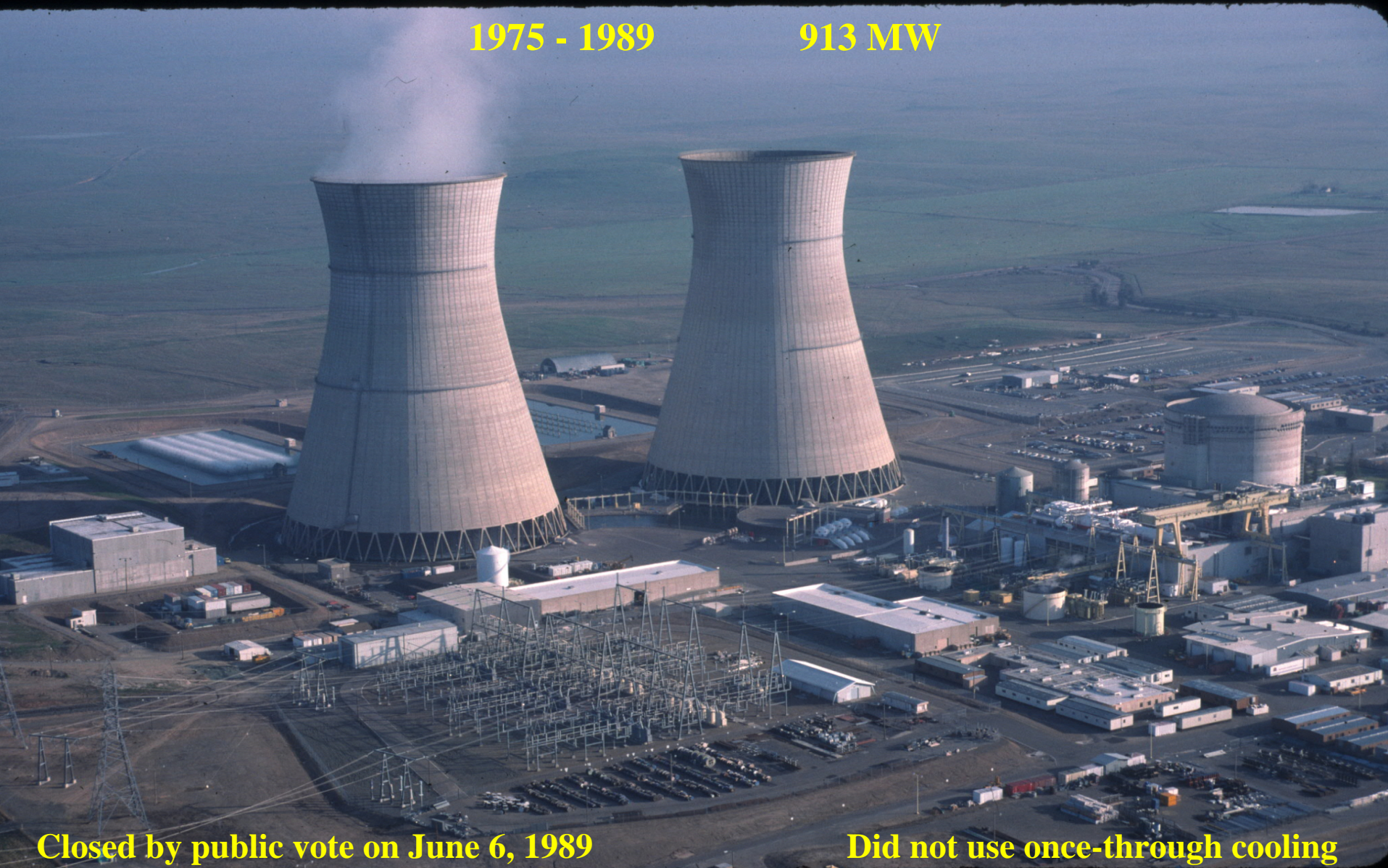
1983, PG&E announced intent to decommission



# Rancho Seco Power Plant

1975 - 1989

913 MW



Closed by public vote on June 6, 1989

Did not use once-through cooling



# Diablo Canyon Nuclear Power Plant

2,160 MW



**Unit 1: 1985 - present**

**Unit 2: 1986 - present**

**Intake: coastal rocky shore**

**Discharge: coastal rocky shore**

# San Onofre Nuclear Power Plant

**2,150 MW**



**Unit 1: 1968 - 1992**

**Unit 2: 1983 - present**

**Unit 3: 1984 - present**

# Once-Through Cooling

Used in both nuclear and non-nuclear coastal power plants

Seawater: free, abundant, and cold

Effective and relatively inexpensive method for re-condensing super heated steam after it has been used to generate power

# Total Permitted Water Volumes (million gallons/day)



Diablo Canyon: 2,540 2,160 MW

San Onofre: 2,390 2,150 MW

Moss Landing: 864 2,538 MW

Morro Bay: 668 1,002 MW

Huntington Beach: 516 788 MW



# San Onofre Mitigation Measures

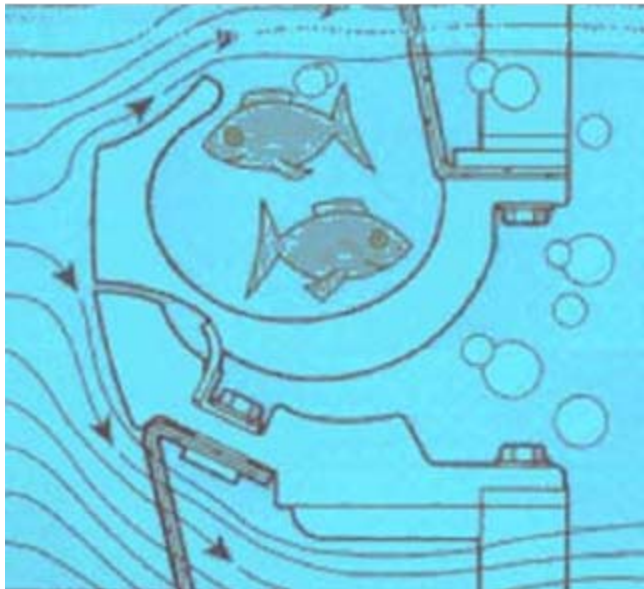


*Photo by H. Elwany*

Behavioral Barrier  
impingement

Wetland Restoration  
entrainment

Kelp Reefs  
impingement/entrainment



Fish return system with Ristroph Screens



*San Onofre Kelp Forest*



# Status of NPDES Permit

Renewed permit: May 21, 2005

Expiration: May 11, 2010

Held to new Phase II regulations

Full impingement & entrainment analysis

# Status of Diablo Canyon Power Plant?

**Stay tuned for Michael Thomas**  
(Central Coast Regional Water  
Quality Control Board)